

CLAIMS

Having thus described the invention, what is claimed is:

1. An apparatus for providing information to the driver of a vehicle while the driver is
5 watching the road through the windshield without requiring that the driver remove his eyes from
the road, the apparatus comprising:

a positioning device which determines the location of the vehicle;

a storage device including stored information about the location of a desired driver
action;

10 a comparator which compares the location of the vehicle with the stored information
about the location of the desired driver action and which provides a signal when the location of
the vehicle is in a predetermined relationship to the location of the desired driver action; and

a projector which displays a message on the windshield indicating the desired driver
15 action in response to the signal.

2. An apparatus of the type described in Claim 1 where the projector is a heads-up
display.

3. An apparatus of the type described in Claim 1 wherein the apparatus further includes
20 an audible indicator of a message in response to the signal.

4. An apparatus of the type described in Claim 3 wherein the audible indicator includes a
speech synthesis system which provides an audible message.

5. An apparatus of the type described in Claim 3 wherein the audible indicator includes a speech synthesis system which can provide at least one audible message which is selected based on the desired driver action.

5 6. An apparatus of the type described in Claim 3 wherein the audible indicator includes a first indicator at a first distance from the desired location and a second indicator at a second, shorter distance from the desired location.

7. An apparatus of the type described in Claim 1 wherein the apparatus includes an indicator that the driver did not make the desired driver action, whereby the driver receives an indication of the missing of the desired driver action after the desired driver action was missed.

8. An apparatus of the type described in Claim 1 wherein the system includes a wireless receiver which receives broadcast traffic information and is coupled to the projector to display the broadcast traffic information.

9. An apparatus of the type described in Claim 1 wherein the system includes a wireless receiver which receives weather information sent from outside the vehicle, with the wireless receiver coupled to the projector for displaying the weather information to the driver.

10. An apparatus of the type described in Claim 1 wherein the system includes a wireless receiver which receives advertising information and couples to the projector to display the advertising information to the driver.

11. A method of providing driving instructions including the steps of
sensing the position of the vehicle;
comparing the position of the vehicle with a desired location;
if the vehicle is in a predetermined relationship with respect to a desired location,

5 generating a signal which indicates that the driver should take an action; and
in response to the signal, displaying on the windshield a message indicating the action the
driver should take.

12. A method including the steps of Claim 11 wherein the step of generating a signal
includes the step of providing an audible signal indicating that the driver should take an action.

13. A method including the steps of Claim 12 wherein the step of providing an audible
signal indicates that a message is displayed on the windshield.

14. A method including the steps of Claim 12 wherein the step of providing an audible
signal includes the step of broadcasting the message on a speaker.

15. A method including the steps of Claim 11 wherein the method further includes the
step of displaying a distance to the desired action.

16. A method including the steps of Claim 11 where the method further includes the step
of determining the speed of the vehicle and providing an indication of a desired action a
predetermined time period in advance of the desired action.

17. A method including the steps of Claim 11 wherein the method further includes the step of determining when the vehicle has passed the desired location and providing an indication that the driver has missed the turn, whereby the driver may take action more quickly to recover from missing the desired location.

18. A method including the steps of Claim 11 wherein the predetermined relationship is estimated time to the desired location.

19. A method including the steps of Claim 11 wherein the predetermined relationship is distance to the desired location.

20. A program stored on a storage medium for generating a displayed message to a driver on the windshield of his car, the program comprising:

a program element for determining a message for display;

a program element for determining an appropriate time for displaying the message;

a program element coupled to a projector for providing a message for display at the appropriate time for the display, whereby the message can be displayed to the driver on the windshield of his car at the appropriate time.

